Request to Archive
With The National Centers for Environmental Information
For African Easterly Wave Climatology
Provided by Georgia Tech

2013-04-24

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

1. Who is the primary point of contact for this request?

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2. Name the organization or group responsible for creating the dataset.

GATECH > Georgia Institute of Technology

3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.

The data contains a climatology of African Easterly Waves (AEW) for four atmospheric reanalyses: NCEP/NCAR, ERA-40, ERA-Interim, and CFS-R for the levels 850 hPa, 700 hPa, and 600 hPa. The spatial domain spans the tropical Atlantic and tropical East Pacific and is bound by the region: 35S - 35N x 140W - 40E. The temporal coverage for the NCEP/NCAR AEW dataset includes the period January 1948 to December 2010. The temporal coverage for the ERA-40 AEW datasets includes the period January 1958 to December 2001. The temporal coverage for the ERA-Interim AEW dataset includes the period January 1979 to December 2010. The temporal coverage for the CFS-R AEW dataset includes the period January 1979 to December 2010. For each AEW the following 25 variables are provided at a 6-hr interval: valid year, valid month, valid day, valid hour, wave trough centroid latitude, wave trough centroid longitude, wave trough maximum latitude, mean longitude of wave trough maximum latitude, wave trough minimum latitude, mean longitude of wave trough minimum latitude, wavelength, mean wave trough relative vorticity, maximum wave trough relative vorticity, mean wave trough curvature vorticity, maximum wave trough curvature vorticity, mean wave trough shear vorticity, maximum wave trough shear vorticity, mean wave trough Claus brightness temperature, standard deviation wave trough Claus brightness temperature, mean wave trough total precipitable water, standard deviation wave trough total precipitable water, mean wave trough outgoing longwave radiation, standard deviation wave trough outgoing longwave radionl. The determination of AEWs is based on a new algorithm developed by researchers at Georgia Tech that uses curvature vorticity anomalies to identify the location of easterly waves as a function of time.

4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)

From 1948 to 2010

5. Edition or version number(s) of the dataset:

v1

6. Describe the level to which the data are processed. For example, are these unprocessed raw observations, derived parameters, quality controlled or inter-calibrated data, etc.?

The easterly wave dataset consists of satellite parameters that have been post-processed, level 3 products such as Claus brightness temperatures, outgoing longwave radiation, and total preciptable water. Other meteorological variables are derived from atmospheric model simulations constrained by data assimilation systems.

7. Approximate date when the dataset was or will be released to the public:

2013-05-30

8. Who are the expected users of the archived data? How will the archived data be used?

The data will primarily utilized by atmospheric scientists specializing in tropical meteorology. This may include studies of easterly wave genesis, intensification, and decay as well as the relationship between tropical cyclones and easterly waves.

9. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?

The evaluation process is currently underway with the following paper, "Revisiting the Tropical Cyclone-Easterly Wave Relationship on Interannual Time Scales" which is in review with the Journal of Climate. A forthcoming paper entitled, "Climate Dynamics of Easterly Wave Variability on Interannual Time Scales" will also utilize these easterly wave climatologies.

10. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?

None

11. List the input datasets and ancillary information used to produce the data.

ERA-Interim Reanalysis, NCEP/NCAR Reanalysis, ERA-40 Reanalysis, CFS-R, Remote Sensing Systems SSM/I Total Precipitable Water, NOAA Interpolated OLR, Claus Brightness Temperaturea

12. List web pages and other links that provide information on the data.

The metadata type and scope have yet to be defined. The plan is to develop appropriate structure consistent with the file format recommendation of the NCDC

13. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.

1. Easterly wave dataset readme file: http://cfanb.eas.gatech.edu/AEWS/aewtracks_filename_readme.txt
   AMS Annual Meeting Presentation 2013:
   https://ams.confex.com/ams/93Annual/flvgateway.cgi/id/24235?recordingid=24235

14. Indicate the data file format(s).

1. CSV

15. Are the data files compressed?

No

16. Provide details on how the files are named and how they are organized (e.g., file_name_pattern_YYYYMM.tar in monthly aggregations).

The file name structure follows the following format: YYYYMMDDHHREGLEVCONT, where YYYY is the starting year, MM is the starting day, HH is the starting hour of the track, REG is the starting region for the easterly wave, possibilities include: NEP for Northeast Pacific, SEP for Southeast Pacific, CAM for Central America, SAM for South America, NAL for North Atlantic, SAL for South Atlantic, AFR for Africa, and OTH for Other, LEV is an isobaric level in hPa (600, 700, or 850), CONT is a running count for the year for the number of waves starting in that region.

Easterly wave track files are tarred by year and are saved as ncdcyyyyLEV.tar, where yyyy is the year and LEV is the isobaric level. Separate tarred files are available for each reanalysis (ERA-Interim, CFS-R, ERA-40, NCEP/NCAR)

17. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?

Example of individual track files may be pulled from here:

http://cfanb.eas.gatech.edu/AEWS/1985060412AFR8500349

http://cfanb.eas.gatech.edu/AEWS/1985061912NAL8500300

Example of yearly-tarred files are available here:

http://cfanb.eas.gatech.edu/AEWS/ncdc1979600.tar

Other sample data is stored here:

http://cfanb.eas.gatech.edu/AEWS/index.php

18. What is the total data volume to be submitted?

Historic Data: all historic data or data submitted as a completed collection.

Total Data Volume: 10GB

Number of Data Files: 500

19. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.

No additional updates, revisions or replacement data are anticipated.

20. Describe the server that will connect to the ingest server at NCEI for submitting the data.

Physical Location: Atlanta, Georgia

System Name: CFANB

System Owner: GATECH > Georgia Institute of Technology

Additional Information: data compressed with gzip #18 kept providing error when selected

21. What are the possible methods for submitting the data to NCEI? Select all that apply.

1. FTP PUSH

wget via http

22. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.

1. Direct download links

23. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?

No known constraints apply to the data.

24. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.

Easterly waves serve as a primary source of tropical cyclone development, particularly of the strongest tropical cyclones. However, to date there has been no effective evaluation of easterly wave behavior over time. Additionally, the calculation of easterly waves is complex and effective methods have only recently been developed. Having this dataset available for use by other researchers could be significant in advancing the understanding of tropical cyclone climatologies. Should this dataset not be archived, advances in tropical cyclone and related meteorological studies related to easterly wave behavior could be limited or require future researchers to redevelop the data derived in this multi-year project.

25. Are the data archived at another facility or are there plans to do so? Please explain.

No

26. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?

No

27. Do you have a data management plan for your data?

No

28. Have funds been allocated to archive the data at NCEI?

No

29. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.

NOAA CCDD: Climatology of African Easterly Waves NOAA Grant 3506G58

National Science Foundation Grant 3506G58

30. Is there a desired deadline for NCEI to archive and provide access to the data?

Archive by: 2013-05-29

Accessible by:

31. Add any other pertinent information for this request.

None